

example, the internet or a private network. Alternately, the software could be written in Objective-C or Java and could interface with the scheduling intelligence module using the Distributed Objects functionality provided by Apple Computer's Cocoa frameworks. In another embodiment, a web browser could be used to interface with the scheduling intelligence module.

The web interface may be implemented as is known in the art using, for example, Java Server Pages (JSP) to update the web interface in accordance with the interaction with the scheduling system. In certain embodiments, the software or web browser interface may be constructed using Apple Computer's Web Objects.

The interface could allow a content provider to browse among available GC, LC, GT, and LT blocks and non-specific offerings of GD and LD blocks. In addition to selecting single blocks or GD or LD offerings, multiple blocks or offerings could be selected at a time. For example, a content provider could request blocks for a weekly distribution of a movie every Friday at 8 p.m. For such repeating distributions, the content provider could indicate whether the same content was to be distributed each time (such as a repeating infomercial) or if different content was to be distributed each time (such as new episode of a soap opera each week). If the same content is to be used each time, in some embodiments the content provider may only need to upload it once.

The scheduling intelligence module maintains a datastore noting all blocks and information concerning their assignment statuses. Once blocks have been chosen by or on behalf of a content provider, the scheduling intelligence module's datastore is updated to reflect this by marking them as "reserved." For example, the datastore may have a "reserved bit" corresponding to each block, where the bit is set to "0" if the block is free and "1" if the block is reserved. The scheduling intelligence module next assigns and forwards to the content provider a unique

identifier for each block. Thus for repeating distributions, only a single unique identifier will be forwarded.

### **Upload, Processing, and Distribution**

After allocating scheduling blocks for distribution of the specified content, the scheduling intelligence module will request from the content provider the content to be distributed and metadata describing that content. The request may further include deadlines by which the metadata and content must be submitted. Generally speaking, the deadline for the submission of the metadata will be prior to the deadline for the submission of content.

The metadata may comprise a wide variety of information describing the content. For example, the metadata may include the unique identifier assigned by the scheduling intelligence module, the content type (e.g., film, application software, classified ad, video game, or music), whether a subscription is required for viewing, the running time, whether the content is for global distribution or distribution to a specified network area, the author, the transmission start time, the transmission end time, the expiration date, the genre, and/or the intended viewer or user age group of the content. In some embodiments the metadata may further include a summary or synopsis of the content. As will be explained in more detail below, this metadata is used for purposes such as compilation of a broadcast schedule and content filtering.

The scheduling intelligence module may request the upload of metadata in a number of ways. In one embodiment, metadata upload could be manual rather than automatic. For example, a dialog box reading:

“Begin upload of metadata for distribution #123456 when ready. Metadata MUST be uploaded before Aug. 12th 2001 @ 23:12:00.”

may appear on the software of the content provider, where “#123456” is the above-noted “unique number” identifying the distribution. In some embodiments, when ready the content provider could select from the software's interface the command “enter metadata”. In response the interface might display the query:

“Enter metadata for which distribution #?”

In response to which the content provider could enter the appropriate unique identifier (e.g., 123456). After content provider has entered the number, the interface might display a dialog box with two buttons, each representing a choice:

“Enter metadata by hand or load from file?  
[By Hand] [From File]”

If the content provider selected “by hand,” the interface could present a form listing various metadata fields (e.g. “type” and “running time”) for the content provider to fill out. If the content provider selected “from file”, the interface could present a file browser from which the content provider could select from local and/or remote storage the file containing the desired metadata. The file might be, for example, in XML format.

After filling out the form or selecting the file, the content provider could select the command “Upload Now” from the interface. In response to this, the metadata could be transmitted to the scheduling intelligence module. In certain embodiments, instead of or in addition to the command “Upload Now” could be the command “Upload at specified time”. By selecting this command, the content provider could select a specific time for the metadata to be transmitted.

Transmission of metadata to the scheduling intelligence module could be done in a number of ways. For example, a virtual private network (VPN) might connect the content